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The Role of the Unconscious in the Perception of Risks

Andrew F. Fritzsche*

Introduction

Our Western culture has created a one-sided world founded strictly upon rationality. This has been accompanied by a suppression of many spiritual needs into our unconscious, out of which they can surface in the form of emotions, influencing our attitudes and our behavior in many ways and in many areas. The perception of risks is just one such area.

Systematic studies on the perception of risks can be said to have begun, in 1969, with the formulation of the classical question, "How safe is safe enough?" by Chauncy Starr.¹ It soon became clear that the mathematical definition of risk used by insurance companies, namely the expectation value of the possible loss or damage, is a measure of only one aspect of a hazard. In contrast, people in general experience such a situation, like life itself, as a many-faceted and multi-colored reality.

This subjectivity of the perception of risks became a major and fertile area of study by cognitive psychologists, who identified and threw much light on many characteristics of a hazard that influence the way in which it is judged. Respect for the insights thus gained highlighted the difficulties encountered when taking decisions on matters of risk, and formal risk management aids such as risk-benefit analysis, utility analysis and decision analysis found intensive development.

In due course, the need to involve the public in this decision making in some way was recognized, and much attention was given to the political processes involved. Most recently the successful communication of relevant risk information to the public has gained increasing attention as an essential but neglected prerequisite for any such public involvement.

One problem in particular has dogged risk management over the full 25 years outlined above. This is connected in one way or another

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¹ Chauncy Starr, *Social Benefits vs. Technological Risk: What is our Society Willing to Pay for Safety?* 165 Science 1232 (1969).

with the enormous range of subjective reactions to the many hazards facing us and which have made it so difficult to reach equitable solutions.

As indicated, risk perception has occupied risk analysts, cognitive psychologists, economists, social and political scientists, and even philosophers, in addition to applied specialists from various fields of activity that are the source of hazards of all kinds. Viewing this list, it is remarkable that the very branch of knowledge which occupies itself specifically with the human psyche, with our inner world, our emotions, our instincts and our hopes has not, as yet, been consulted. Reference is to the field of depth psychology or the psychology of our unconscious.

This statement is not absolutely true. Occasionally, cognitive psychologists in this field have recognized that "technological risks can evoke the deepest feelings".² However, they have not questioned the deeper sources of such feelings.

The physicist Wünschmann, together with the psychiatrist Tyn, have published a study on the psychological background of the nuclear energy controversy in a book: *Unconsciously in Opposition*.³ The present author is indebted to this book for drawing his attention to the relevance of depth psychology not only to an understanding of the nuclear, but also to many other societal controversies, as well as to the deep insight which this approach offers into the sources of the subjectivity of risk perception in general. A part of what follows leans quite heavily on this pioneer study. Some work by Tubiana, a French physician and radiologist,⁴ should also be referred to in this connection.

The One-Sidedness of Modern Society

Ever since the Age of Enlightenment and then at a rapidly accelerating pace since the beginning of the Industrial Revolution, Western societies have been increasingly dominated by the developments in science and technology. This development has raised our standard of living and in many ways also our quality of life to a level many other parts of the world can still not even dream of. There is hardly a material wish that cannot be fulfilled, often instantly, or at least in principle. Actually, this development

² Baruch Fischhoff, *Managing Risk Perceptions*, 2 Issues Sci. & Tech. 83 (1985).

³ Andreas Wünschmann, *Unbewusst dagegen; zur Psychologie der Kernenergiekontroverse* [Unconsciously in opposition; On the psychology of the nuclear energy controversy] (1982).

⁴ Maurice Tubiana, *One Approach to the Study of Public Acceptance*, in *Directions in Energy Policy*, 343 (Behram Kursunoglu & Arnold Perlmutter, eds. 1979).

was initiated far earlier, when analytical thought evolved in Greece a few centuries before Christ. In the Renaissance, it expressed itself in well-known conflicts between science and religion, knowledge and faith.

In the course of this development, rationality and purely material gains have been increasingly stressed to the detriment of our spiritual values and our emotions. This trend was recognized and deplored by many men of learning, beginning with the Greek philosophers themselves. More recently, Jean-Jacques Rousseau,⁵ the Swiss moralist and original author of the call "back to nature," declared in his famous essay, "to the extent that our sciences and arts progress towards perfection, our soul has been corrupted."

In our days, Carl Gustav Jung, whose work will occupy us here, expressed himself on this dilemma as follows:⁶

Everything imaginable has been done for the outside world: the sciences have been refined to an unbelievable extent, technical achievements have reached an almost uncanny degree of perfection. But what of man in all this No one has stopped to consider that he is neither morally nor physically adapted to such changes.

As a result of this one-sided and in the true sense unnatural development, large sections of society have become estranged from their natural roots and disoriented in a world that they can only partially understand. Deep inside us this uncanny world of technology can create a vague unfocused fear that may even cause spiritual ailments or neuroses. In the grips of such a subconscious world, why wonder that certain hazards are abhorred and zero risk is demanded? Society has, in truth, become dehumanized.

Around the turn of the century, growing awareness of such spiritual distress led to the serious study of our inner world and to the birth of the German schools of depth psychology and psychoanalysis, primarily coupled with the names of Sigmund Freud (1856-1939), Alfred Adler (1870-1937) and Jung (1875-1961).

Focusing now more specifically on the relevance of our inner world for the perception of risks, a number of questions would seem to call for clarification: How is it that subjective reactions to hazards can vary so enormously from individual to individual as this has been repeatedly established? How then is it also possible to find definite general trends in risk perception, or systematic differences in the valuation of certain categories of risks? What can be said in a general way about the sources of

⁵ Jean-Jacques Rousseau, *Discours sur les Sciences et les Arts* [Discourse on the sciences and the arts] (1750).

⁶ Carl G. Jung, *Essays on Contemporary Events*, 72 (London: Keegan Paul 1947).

beliefs from a non-intellectual point of view? And how about controversies over hazards which quite often assume a quasi-religious intensity?

Below, this author will attempt to outline what the work of the Swiss physician and psychoanalyst Jung and his school of depth psychology can say to answer questions such as these. This presupposes the introduction of some very specific concepts and other fundamental elements of Jung's teachings in the first part of the paper. Risk managers, constantly confronted by the socio-political complexities arising from what could be termed the "idiosyncrasies of risk perception" will, in general, have limited familiarity with these teachings, so that they call for careful definition and explanation. Extensive use will be made of quotations from the writings of Jung and his followers to assure authenticity in the presentation of his ideas. It must be understood that Jung's psychology includes a far wider range of ideas than those relevant to the present subject.

On the other hand, aside from familiarity with the phenomenon of the subjectivity of the perception of risks just indicated, the author has assumed general acquaintance with the work done in the past aimed at understanding this phenomenon. For this reason he has restricted himself in the second part of the paper to appropriate allusions to previous work and to only a few topical references to the vast risk-perception literature.

It must be appreciated that a paper like this, introducing a fundamentally new approach to an understanding of risk perception, will tend to bring up many new questions, and much more work is called for before the real value of the depth-psychological approach and the nature and extent of its consequences can be properly judged. We must not forget that the extensive insights gained by cognitive psychologists in this field have been the result of investigations by many professionals in many countries, and over a period approaching two decades.

The Unconscious in the Psychology of Jung⁷

Jung, originally a collaborator of Freud, though perhaps less known in the U.S., developed Freud's understanding of our inner life in many decisive directions. Thus Jung's *Unconscious* is a far broader concept than that of Freud, representing "a world that is just as much a vital and real part of the life of an individual as the conscious, 'cogitating' world of the Ego, and infinitely wider and richer."⁸

⁷ Jung uses "unconscious" in a very specific way, and the word is capitalized when used in Jung's sense.

The complement, our *consciousness*, is the home of our awareness, knowledge, intellect and rationality.⁹

Logical analysis is the prerogative of consciousness; we select with reason and knowledge. The Unconscious, however, seems to be guided chiefly by instinctive trends, represented by corresponding thought forms — that is, by archetypes. [See below.]

Our consciousness distinguishes us from all other animals. Yet, this is a very recent acquisition within the framework of evolution.¹⁰

Primitive man was much more governed by his instincts than are his “rational” modern descendants, who have learned to “control” themselves.

Today the conscious part of our psyche has lost contact with some of the primitive psychic energies.¹¹

Skepticism and scientific conviction exist in him side-by-side with old-fashioned prejudices, outdated habits of thought and feeling, obstinate misinterpretations, and blind ignorance.

According to Jung, it seems that:¹²

the Unconscious has preserved primitive characteristics that formed part of the original mind. It is to these characteristics that the symbols of dreams constantly refer, as if the Unconscious sought to bring back all the old things from which the mind freed itself as it evolved — illusions, fantasies, archaic thought forms, fundamental instincts, and so on.

In the usage of Jung, the *Unconscious* can comprise:¹³

all urges, impulses and intentions; all perceptions and intuitions; all rational or irrational thoughts, conclusions, inductions, deductions, and premises; and all varieties of feeling.... Such material has mostly become unconscious because — in a manner of speaking — there is no room for it in the conscious mind.... It is, in fact, normal and necessary for us to “forget” in this fashion, in order to make room in our conscious minds for new impressions and ideas.... But just as conscious contents can vanish into the Unconscious, new contents, which have never yet been conscious, can *arise* from it.

Jung once used the graphic image of a spotlight. What appears in the beam of light is conscious; what lies beyond in the dark is unconscious, but it is nevertheless alive and active. Just as the beam of light can move on, some of the earlier conscious contents can revert into the unconscious while other contents step into the light of consciousness. However, the former are still there and may come back into the light at any time. Jung

⁸ John Freeman, *Introduction* to Carl G. Jung et al., *Man and his Symbols*, 12 (London: Aldus Books 1964).

⁹ Carl G. Jung, *Approaching the Unconscious*, in Carl G. Jung et al., *Man and his Symbols* 78.

¹⁰ *Id.* at 52.

¹¹ *Id.* at 96.

¹² *Id.* at 98.

¹³ *Id.* at 37.

made an important distinction between the personal and the collective Unconscious.¹⁴

The *personal Unconscious* contains lost memories, painful ideas that are repressed (i.e. forgotten on purpose), subliminal perceptions, by which are meant sense-perceptions that were not strong enough to reach consciousness, and finally, contents that are not yet ripe for consciousness.

It follows from this that the contents of the personal Unconscious are of a personal nature and thus, in their totality, they are unique to each individual.¹⁵

While the personal unconscious is made up essentially of contents which have at one time been conscious, but which have disappeared from consciousness either by having been forgotten or repressed, the contents of the *collective Unconscious* have never been in consciousness and therefore have never been individually acquired, but owe their existence exclusively to heredity.

The collective Unconscious is the sum of all the hereditary factors of humanity's spiritual evolution, reborn in the structure of every individual brain. The contents of the collective Unconscious are thus the universal possession of humankind, active in all of us in like fashion.

Contents of the Collective Unconscious

These pre-existing forms are of two kinds: the instincts and the so-called archetypes.

Instincts are common to both animals and humans. They are a kind of reflexive reaction of a compelling nature, psychological impulses which in any given context are unambiguous and precise. We are all acquainted with our involuntary reaction on unexpectedly coming into contact with a hot object. The impulsive fear we experience in an unexpectedly dangerous driving situation is also of an instinctive nature. Instincts are, in the final analysis, ways of acting.

Archetypes, in contrast, are ways of perceiving. This term is Jung's name for the prototypes of human mental images which often have a mythological source and reveal themselves in the form of symbols. Yet,¹⁶ they are, at the same time, both images and emotions. One can speak of an archetype only when these two aspects are simultaneous. When there is merely the image, then there is simply a word-picture of little consequence. But by being charged with emotion, the image gains numinosity (or psychic energy); it becomes dynamic, and consequences of some kind must flow from it.

¹⁴ Carl G. Jung, *Two Essays on Analytical Psychology*, 65 (London: Pantheon Books 1928).

¹⁵ Carl G. Jung, *The Concept of the Collective Unconscious*. Lecture in New York City, Oct. 2, 1936, manuscript.

¹⁶ Jung, *supra* note 9, at 96.

These consequences can express themselves spontaneously in the form of dreams, visions or thoughts. In this way archetypes forcibly mold our attitudes and in general also our behavior.

In Jung's own words:¹⁷

The archetypes have their own initiative and their own specific energy.... They come and go very much as they please, and often they obstruct or modify our conscious intentions in an embarrassing way. One can perceive the specific energy of archetypes when we experience the peculiar fascination that accompanies them. They seem to hold a special spell.

We must thus come to understand that:¹⁸

we are moved by forces from within as well as by stimuli from without. These inner motives spring from a deep source that is not made by consciousness and is not under its control. In the mythology of earlier times these forces were called mana, or spirits, demons, and gods. They are as active today as they ever were. If they conform to our wishes, we call them happy hunches or impulses.... If they go against us, then we say that it is just bad luck.... The one thing we refuse to admit is that we are dependent upon "powers" that are beyond our control.... [But mankind's] gods and demons have not disappeared at all; they have merely got new names. They keep us on the run with restlessness, vague apprehensions, psychological complications... and, above all, a large array of neuroses.

The Typology of Jung

We shall come back to archetypes shortly. Before doing so, we must cast a glance at the almost unlimited diversity of the individual psyche. Though our collective Unconscious is a universal inheritance from the evolution of mankind, this does not mean that every individual will, during his or her life, respond in the same way to this inheritance. We are all only too well aware of the sometimes striking differences in temperament and in the reactions of different persons to a given situation, not least in the valuation of a hazard. A human being is born with an unbelievable mixture of genes, and among these there may be factors which are very difficult to reconcile.

A distinction between contrasting human types can, in principle, be traced back over three millennia to the Chinese *I Ching* [Book of Changes], that introduced the complementary forces of Yin and Yang. Closer to our own topic one could mention the Hippocratic *Four Humors*, expressing sanguine, phlegmatic, melancholic or choleric temperaments. Since then, many more specific personal characterizations have been proposed: platonic/aristotelian, idealist/materialist, romantic/classical, or empiricist/

¹⁷ *Id.* at 79.

¹⁸ *Id.* at 82.

rationalist. In this tradition Jung coined the terms introvert/extrovert to denote two different attitudes, and these have since become a part of our everyday vocabulary.

With these terms Jung distinguishes two opposing attitudes toward the factual world. *Extroverts* are oriented outwards, experiencing their essential stimulation from the outer world of people and things. Subjective influences seem a mere disturbance of their objective world view. Their thinking is materialistic and they form their opinion on the basis of facts. They are active, have an open character, are optimistic, sociable and communicative and they face their environment unreservedly.

Introverts, on the other hand, are oriented inwards. They are motivated by their own subjective view of the world rather than by objective reality. Facts are of secondary importance compared to the suggestions of their inner counsellor. This makes introverts very susceptible to influence from archetypes:¹⁹

Introverted thinking shows a dangerous tendency to force the facts into the shape of one's [subjective] image or even to ignore them [altogether] in order that one may unfurl one's fanciful image...."

Introverts have a reflective and reserved character, are pessimistic, passive and hesitant, and due to their anxious disposition they are defensive when face-to-face with their environment. This can express itself in politeness and meticulous correctness, thrift and conscientiousness, but is at the same time coupled with a vigilant mistrust.

Clearly these descriptions are those of two extremes. As we no doubt are well aware, all of us have both extroverted and introverted attributes in our personal make-up. We belong to one or the other type by virtue of the predominating characteristics. Extroverted characteristics play a subordinate role in the make-up of the introvert and vice versa. However, external circumstances or a momentary inner disposition can influence the balance and bring the subordinate attitude to the fore. The position of any individual on the extrovert/introvert scale, nevertheless, seems to be more or less fixed at birth.

The balance of attributes determines the way an individual reacts in any situation and influences his or her attitude towards the object in question. Finally, if applicable, it will determine also both intentions and behavior towards the object.

¹⁹ Carl G. Jung, *Psychologische Typen* [Psychological types] (1921) (translation by author).

In the course of his further work, Jung was struck by the large differences which he still found between individuals who could be clearly assigned to the one or other of the above-mentioned attitude types. This led him to distinguish additionally between four basic psychological functions of the mind and thus between four corresponding functional types. These functions are: thinking and feeling on the one hand, sensation and intuition on the other.

Thinking implies the intellectual use of the mind, aimed at rational understanding. Thinking types view things as an observer. In order to comprehend the world and to decide their actions, they lay great emphasis on their logical analysis of a situation. Everything that turns up is subject to their reflection or meditation in order to determine the "truth." Thinkers decide with their heads.

Their counterparts, called the *feeling* type by Jung, often neglect thinking to a remarkable degree in favor of their emotions. They view things more as a participant. They judge a situation on the basis of their scale of values and lay great weight on achieving harmony. Feelers decide with their hearts. Feeling must here be understood in the sense: "I have the feeling that this is good, that is, right."

For another sense that the word "feel" can assume: "I feel cold," Jung uses the word "sensation." *Sensation* types restrict themselves to perception of a situation by means of their five senses, neither reflecting on its meaning nor considering its spiritual value. This type likes things to be specific, concrete and routinely practicable. They are down to earth and tend to see individual trees rather than the whole wood.

If, on the other hand, the perception is not the outcome of one's conscious senses but appears out of the Unconscious in the form of a presentiment or an instinct, then Jung speaks of an *intuitive* type. This type dislikes all routine, is imaginative and thus welcomes change and variety. The intuitive sees the whole wood rather than individual trees.

These four basic functions and functional types are diagramed below, showing that they form two distinctive pairs of concepts. Thinking as well as feeling are rational functions. This is quite evident in the case of thinking, but it is also true in the case of feeling when, as here, this concept has been freed of everything intuitive.²⁰

Feeling values and feeling judgments — that is to say, our feelings — are not only reasonable, but are also as discriminating, logical, and consistent as thinking.

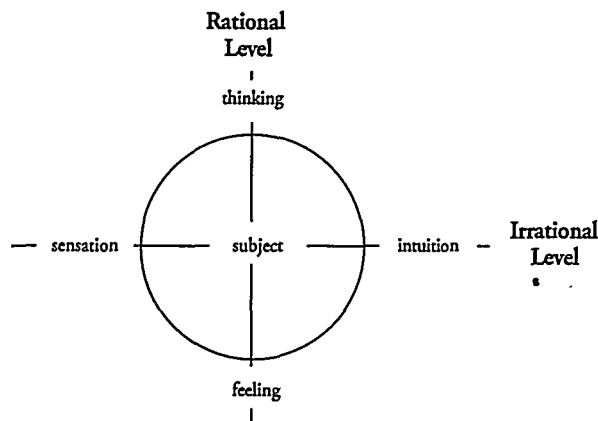
²⁰

Carl G. Jung, *Modern Man in Search of a Soul*, 105 (New York: Harcourt, Bruce & Co. and London: Keegan Paul, Trench, Trubner & Co. 1933).

In contrast, sensation and intuition are irrational functions, non-rational, non-logical and non-evaluating.²¹

Lack of rationality is a vice where thinking and feeling are called for — rationality is a vice where sensation and intuition should be trusted.

Jung's View of the Psychological Functions of the Mind



Each of the functions in one of these pairs are again mutual opposites.²² The one-sided emphasis on thinking is always accompanied by an inferiority in feeling, and differentiated sensation and intuition are mutually injurious.

Here again, of course, no individual will ever exhibit any one of these basic functional characteristics in pure form to the total absence of all others. We all of us manifest a complex combination of all four to varying degrees. The predominating characteristic, however, is a strong indicator of our mental make-up.

In contrast to the distinction extrovert/introvert, the combination of the four basic functions can change during a lifetime. Because the two attitude types extrovert and introvert can be combined with any one of the four functional types, the psychological typology proposed by Jung to characterize individuals leads to a total of eight basic types.

Our individual psychological make-up determines to a large extent the nature and the course of our whole life. On the basis of these, our very personal spiritual qualities, we take up a career, develop a particular philosophy of life and an individual world view, are attracted mainly by certain persons and groups in society, and can embrace a specific ideology with more or less fervor.

²¹ *Id.* at 106.

²² *Id.* at 106 ff.

It is worth mentioning that the female sex is generally more receptive than the male to moods, feelings, presentiments and everything irrational. Its relation to the Unconscious is considerably closer and richer. In the course of history women have often recognized the value of new spiritual factors earlier than the emotionally more conservative men.

Our personal psychological resources will also to a large extent determine how we react in the face of a hazard, how we perceive it, how we value it and how we finally come to terms with it. The evaluation of a hazard by an extroverted individual of the thinking type will, for example, be based primarily on a rational analysis of the risk, while the result of any such analysis will hardly be of consequence for an introvert with strong intuitive tendencies. The latter instinctively "knows" how dangerous the situation is. His judgment of the risk will often seem to be quite unrealistic to the extroverted thinker.

This is not the place for a detailed discussion of the colorful variations in the behavior of the various psychological types. Such a discussion can, for example, be found in Goldsmith and Wharton²³. However, what has been said makes it at least plausible that the eight types proposed by Jung can come close to describing major classes of behavior which are found not only in the perception of risks, but also in countless other life situations.

A systematic study of correlation between psychological type and risk perception behavior remains to be undertaken. There exist a number of empirical questionnaires aimed at the determination of personality type according to Jung²⁴ on which such a study could be based.

Discussion of Human Behavior Patterns

There have been many attempts to trace back typical behavior patterns to specific human characteristics from a cultural, political, sociological, economic or anthropological point of view.²⁵ These have afforded many insights into the variety of the human temperament and their social implications. Perhaps the most well known of the cultural theories is the grid-group typology due to Mary Douglas.²⁶ This identifies five basic

²³ Malcolm Goldsmith & Martin Wharton, *Knowing Me — Knowing You: Exploring Personality Type and Temperament* (1993).

²⁴ See Horace Gray & Joseph B. Wheelwright, *The Jungian Type Survey* (1964); Myers Briggs, *The Myers Briggs Type Indicator*.

²⁵ For an overview, see e.g., Aaron Wildavsky & Karl Dake, *Theories of Risk Perception: Who Fears What and Why?* 119 *Daedalus* 41 (1990).

²⁶ Mary Douglas, *Cultural Bias*, in her book, *In the Active Voice*, 190–2, 201–3 (1982); see also Mary Douglas & Aaron Wildavsky, *Risk and Culture* (1982).

ways of life: hierarchy, egalitarianism, fatalism, individualism and autonomy, typified respectively by the submitting caste member, the fundamentalist sectist, the ineffectual fatalist, the freedom-loving entrepreneur and the uninvolved hermit.

The main thrust of this and other cultural theories is that human behavior and way of life are determined by social context.²⁷ Another interpretation, however, now seems to call for attention. Surely the successful entrepreneur became what he is primarily because he was blessed with an initiative, imaginative, active and self-reliant personality (and perhaps with other helpful traits). In Jung's terms, he is an extrovert with well developed intuition. The withdrawal of the hermit into his or her undisturbed niche will likely be the expression of an intensive introvert personality. Rather than becoming what cultural theory terms a sectist through association with other egalitarian and moralistic-minded individuals, it would seem that the attraction of this social group is nothing else than an expression of the sectist's inborn make-up, paraphrased in Jungian terms as an introvert with highly developed feeling and intuition.

Thus, in this author's view, the typology of Jung, based on the psychology of the Unconscious, is a more fundamental analysis of human behavior than those referred to above, reaching back, as it does, to the basically in-born functions of the mind. Jung's typology approaches the question of behavior as it were from the "inside," whereas other theories, whether based on cultural, sociological, political or economic backgrounds, are all in this sense approaches from the "outside."

This, of course, is not to negate certain influences on the individual from the outer world. The primary determinant would, however, seem to be his original psychic make-up. Much of what is taken as social influence may well be a reinforcement of certain original personality characteristics which are representative of the role the individual plays in society following his natural inclinations. A systematic correlation of Jung's typology with the categorization due to cultural and other theories is another worthwhile study which should be undertaken.

Some Pertinent Archetypes

The perception of a hazard is a very personal matter, a fact only too familiar to all workers in the field of risks. The variation displayed is of the same order as the variation of individual characters and temperaments.

²⁷ Michael Thompson, Richard Ellis & Aaron Wildavsky, *Cultural Theory* (1990).

Much light has been thrown on the deeper sources of this variation by the typology of Jung.

At the same time it is well known to practitioners in the field that certain categories of hazard are perceived in a rather similar way by large groups of the population. Some hazards are widely held to be particularly repugnant, others as wholly innocuous, often quite independently of any objective measure of the risk. Though this seems to be in conflict with the extreme individuality of risk perception just discussed, there is no doubt that there is frequently also some system in the subjective perception of risks. Consideration of this phenomenon brings us back to the collective Unconscious and to Jung's archetypes.

As already seen, an archetype is an innate tendency or an instinctive inclination towards the occurrence of a particular mental reaction. An archetype slumbers in our collective Unconscious and may be activated at any time, not consciously, but quite automatically at the call of a "trigger" from the outside. Such a trigger may be a thought, a statement or an event. The archetype then suddenly enters into our consciousness, sometimes with an unbelievable violence that can totally captivate us.

Archetypes often reveal themselves in the form of mythological symbols with which events and situations in the real world can unconsciously be associated. In what follows, we mention just a few archetypes with relevance to the perception of risks.

The Hero's Downfall

Every culture has its myths about the downfall of a hero. The hero, first smiled upon by the gods, becomes arrogant and revolts against them, finally finding merciless humiliation and punishment at their hands. Among such myths one could mention the punishment of the angel Lucifer according to the Book of Genesis, the Greek myth of Prometheus, or the story of Icarus.

This archetype would seem to manifest itself in our days, for example, in the reproachful question whether our society is really still in full control of science and technology. To these our western nations owe their well being and all too often they are claimed to hold the solution to all the remaining problems of mankind. But possible negative consequences have become a growing topic of discussion — a presentiment of dire punishment awaiting us? This archetype is directly related to the distrust sometimes shown toward scientific elites, toward powerful industrial organizations and certain technologies like nuclear energy, or even to science and

technology quite generally. Indirectly it may make itself felt in the attraction of "soft technology," "small is beautiful" and the "back to nature" movement (the latter reaching back to 1750 as we have seen).

That such expressions of the hero archetype can reflect on the perception of certain risks seems most likely. Perhaps the most obvious example is the widespread and often extreme overestimation of those risks in any way connected with "artificial" or man-made radiation and, as a consequence, the fear of nuclear energy. Here mankind, like Prometheus, has usurped the powers of the gods and our downfall is bound to come.

The widespread anxiety caused by modern developments in gene technology may also be an expression of the hero archetype. Here too, man can be seen as arrogantly assuming the role of Creator, a role which behoves him not, and which can end only in mankind's extinction.

In both these cases, psychometric studies have invariably shown most extreme disparities between the risk perceived by many lay persons and that determined by the specialists.

The Paradise Archetype

People of all world cultures have dreamed of a paradise on earth, and this archetypal dream has always been a strong force in religion, philosophy, literature and art. The idea of a paradise plays a role not only in society as a whole, but also in our personal lives.

However, this vision has at all times been exploited both for bad as well as for good. Today it is at the root of our belief in a welfare state, in world peace and in the rights of humankind, but the identical vision was, and in some parts of the world still is, invoked by the leaders of totalitarian regimes to legitimize their ruthless rule.

This archetype makes us responsive to many "good" goals, be they religious, political or charitable, as well as to aspire to these goals with enthusiasm and frequently with fervor — even with fanaticism. The pursuit of such goals tends to encourage the formation of like-minded groups of all kinds: not only whole religions, but also religious and quasi-religious sects, environmental and other public interest groups, as well as anti-groups in a multitude of fields. A major motivation in all of these is the archetypal vision of a better world, at least as seen by the respective proponents. In this sense, the archetype of a paradise is perhaps less a goal as such, than a strong incentive to become active and to fight for what has been recognized as "good," or against what has been recognized as "bad."

That this reflects back upon the perception of risks that are the consequence of "good" or "bad" activities is hardly to be doubted. Such an unconscious projection of the archetypal paradise image is often accompanied by a restriction of our consciousness, leading to a considerable misjudgment of reality. This can be and is, on occasion, misused to manipulate individuals and whole groups for the "good" cause.

The Sun as Archetype

We shall return to the special characteristics of such groups shortly, but first another very compelling archetype must be mentioned. The life-giving divine power of the sun has been the source of religious and quasi-religious myths in all cultures, and in the course of time these have engraved themselves deeply into the collective Unconscious of the human psyche. In these myths the sun represents the source of all light and warmth, and thus the source of life itself, so that the sun has become the well nigh irresistible symbol of all that is good.

The force of this archetype can be suspected in many contexts. A dark brown complexion can be the greatest pride of some vacationers returning to their city desks, much envied proof of their good health. But in fact, excessive exposure of the skin to the ultraviolet rays of the sun is the most frequent self-caused source of cancer after smoking. The sun, it is felt, surely can only be good!

A more indirect expression of the archetype sun is the overwhelming role that solar energy plays in many lay discussions about energy. The radiant energy of the sun is the natural, clean and inexhaustible energy source, available to all mankind regardless of social standing, race or creed, and free of charge (!) from our very own heavenly body. Heaven, by the way, is also an archetype.

What a contrast this is to the "unnatural," uncanny, dangerous and satanic (another archetype) potency of nuclear energy. Who would, under these circumstances, expect that the risks resulting from the production of solar and nuclear energy are perceived in any way approaching reality by the uninformed non-specialist?

It has already been mentioned that archetypes frequently express themselves in the form of symbols. This can be demonstrated here quite literally. Some ten years or so ago, the anti-nuclear community in the German-speaking (and presumably also in other) countries propagated the button shown below. What made it so popular was the image around which the message was arranged, namely the friendly smiling face of the

sun on a bright yellow background. It is hard to imagine a more direct appeal to the archetype of the sun and to all the positive associations which this implies.

Atomic energy? No thank you.



The enormous appeal of the archetype of the sun in its various forms of expression has been demonstrated in the risk field by psychometric studies. As an example, reference may be made to studies of attitudes towards energy systems undertaken at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg (Austria). One of the results of this work is reproduced below²⁸ as a graph that shows the frequency distribution of attitudes toward five energy systems.

The attitude of the total sample toward solar energy (as well as hydro) was most frequently highly favorable, with practically no negative attitudes. In contrast, attitudes toward nuclear were very mixed, most frequently neutral, with strong polarized groups holding either negative or positive beliefs. Of course, archetypes do not influence all persons to the same extent. In this light, the unconditionally positive valuation of solar energy is certainly striking.

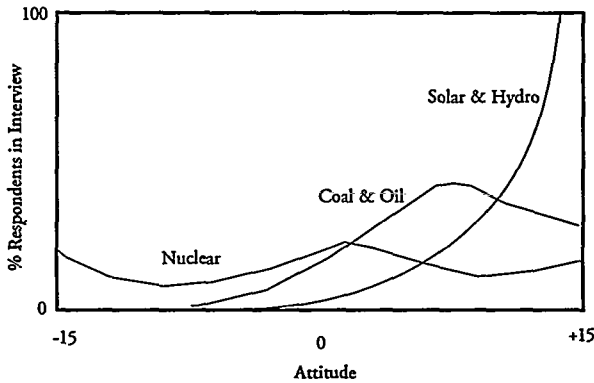
We may note in passing that the objective health risks of solar energy generation are by no means lower than those incurred by nuclear energy when, as it must be, the whole production cycle is taken into account. This is due to the very low specific energy flux provided by the sun, thus calling for very extensive installations, whose construction require large quantities of materials and much labor. Both materials procurement and construction work are the source of considerable risk.²⁹ The subjective

²⁸ Kerry Thomas, *Comparative Risk Perception: How the Public Perceives the Risks and Benefits of Energy Systems*, A376 Proc. Roy. Soc'y 35 (1981); Kerry Thomas & Harry J. Otway, *Public Perceptions of Energy System Risks: Some Policy Implications*, in 2 *Progress in Resource Management and Environmental Planning* 109 (Timothy O'Riordan & K. Turner, eds. 1980); and Kerry Thomas et al., *A Comparative Study of Public Beliefs about Five Energy Systems* (IIASA RR-80-15) (1980).

²⁹ Andrew F. Fritzsche, *The Health Risks of Energy Production*, 9 *Risk Anal.* 565 (1989).

perception of the risks associated with these energy systems thus does seem to be strongly influenced by the archetypes just considered.

Frequency Distribution of Attitudes Toward Energy Sources³⁰



Discussion

There are as many archetypes as there are typical traditional situations in the life of mankind. Endless repetition has imprinted the experience of such situations in our psychic constitution, ready to be activated from without. Most of these archetypes, however, are hardly of relevance to our present topic. The general point to be made here is that the collective Unconscious, our common inheritance from archaic times, contains much that can influence our behavior today, and this usually without our even being aware of it. These innate tendencies, then, are common to us all, and so it will come as no surprise that many people can, as a result, have quite similar reactions to the world around them. Similar perceptions of specific risks are only one example among many.

Individuality comes in by way of the large psychological differences from person to person discussed earlier. Thus the strength of the influence of an archetype, and of archetypes in general, can vary from individual to individual. It will be far less in the case of an extrovert than in that of an introvert, and less for the thinking than for the feeling type.

The Psychology of Groups

The work of Jung has also led to important insights into the behavior of like-minded groups of individuals such as they originate in countless situations in the private and public sphere. In accordance with the well-known saying, "birds of a feather flock together," such groups tend to

³⁰ Thomas and Thomas et al., *supra*.

form as a result of a common temperament, mutual interests or the pursuit of a common goal.

In view of what has been said about the wide variation of temperaments and in particular about the influence that archetypes can have on our behavior, such group formation is easy to understand. Thus the aims of religious, welfare, ecological or political groups will preferentially attract certain psychological types. But Jung has shown that there is more to it than that.

A fellowship of like-minded persons can give the individual courage, bearing and dignity, which he may have difficulty in maintaining if he is on his own. It promotes a feeling of human solidarity and of belonging. It is so easy to identify with a group, to feel oneself carried by the "ecstasy of the group." The force of an archetype can then be used to motivate people to collective action. This is exploited for good, and not infrequently, for bad.³¹

A large gathering of individuals has great suggestive power. In a crowd the individual easily becomes a victim of suggestion. Something needs only to happen, for example a proposal is made with which the whole group is in accord, then one also conforms, even if it is immoral. In a crowd one feels no personal responsibility and no fear.

This is the phenomenon commonly called mass psychology.

Jung studied this phenomenon particularly in the days of the Third Reich in Germany. He concluded that when many individuals unite in a common frame of mind, the ensuing group experience brings forth a collective soul which lies on a lower level than that of the participating individuals. In a very large mass of people even a kind of common beast soul can emerge.³²

A large crowd made up of admirable human beings resembles in terms of morality and intelligence a large, foolish and violent beast.

As a final climax, a radicalization cannot be excluded in any mass movement: "Destroy that which threatens our own destruction."

While this phenomenon certainly was demonstrated in the extreme by National Socialism as well as by some other radical political movements or parties since then, it doubtless also plays a major role in the many terrorist organizations active in our days, as well as in the tragedy now in progress in former Yugoslavia.

A trend in this direction can, nevertheless, be made out to a greater or lesser extent in the behavior of many of the usually moderate societal

³¹ Carl G. Jung, *Ueber Archetypen und das kollektive Unbewusste* [Concerning archetypes and the collective unconscious] (1934) (translation by author).

³² Jung, *supra* note 6, at 74.

groups and activist movements so common today. In such groups ideologies are created, which may then be defended against "unbelieving" outsiders with vehemence and often with a quasi-religious fervor. Convinced that the group is in possession of the one and only truth, it becomes a matter of faith, and in matters of faith no compromise is possible. Topical examples of such behavior will come to every reader's mind.

Such behavior makes the members of groups intolerant and to a large extent inaccessible to any conflicting information, even to indubitable facts. Intelligence can accomplish little when archetypes have you in their grip. This must be kept in mind when attempting to communicate risk or any other information to a wider public.

Further, the inflexible behavior of many groups can make rational discussion difficult and sometimes quite useless, being little more than the performance of a ritual, a discourse among the deaf, as the French so aptly say. Such debates can even be counter-productive in that they can increase rather than reduce a confrontation.

Psychological Projection

Jung recognized the influence of another strong archetypal force in such behavior, that of the so-called *Shadow*.³³

By "Shadow" [Jung] means the "negative" side of the personality, the sum of all those unpleasant qualities we like to hide, together with the insufficiently developed functions and the contents of the personal Unconscious.

A human being's Shadow consists not only of small weaknesses and minor failings; it can on occasion develop a sheer demonic force.

His Shadow is usually unheeded by the individual, but it is very often projected onto others, for example onto his "opponents" in a debate, onto the government or onto society as a whole. An everyday example can be found in the malicious gossip one all too frequently can hear.

There is nothing new in this insight. The projection of one's Shadow was referred to in the famous Bible quotation, "Why beholdest thou the mote that is in thy brother's eye but considerest not the beam that is in thine own."³⁴ We tend to believe that we ourselves make no mistakes (or we have an excuse ready if ever we do!). It is always the others who are in the wrong — or the authorities.

³³ Jung, *supra* note 14, at 65 ff. (The specific concept which Jung terms "Shadow" is here capitalized.)

³⁴ *Matthew* 7: 3.

Jung found that:³⁵

one is "open" to other influences in one's unconscious Shadow side [so that] uncanny and alien elements can break in.... The Shadow is exposed to collective infections to a much greater extent than is the conscious personality. When a man is alone, for instance, he feels relatively all right.... [But when in a group] he [can] give way to impulses that do not really belong to him at all.

Such influences can be seen in many activist groups, as well as in debates that arise over controversial issues. The workings of archetypal forces may also help us to understand the behavior of the notorious "scientist-activist" or the so-called "critical scientist" who, in the name of an ideology, frequently usurps the role of specialist in a field far from his own.

Specific contents of the Unconscious can be projected not only onto another person or an organization, but also onto a material object. As was the case for primitive man, who thus projected his fears onto a tree or a cave, gaining relief by avoiding these in the future, so does modern man frequently unburden himself of his metaphysical fears by focusing them upon a concrete object. Many people who have lost their bearings in our modern super-rationalized society and which were referred to in the introduction, frequently project the oppressive but diffuse feeling of fear under which they suffer in this way, for example onto nuclear power or onto the loudly proclaimed "poisons in our food." The many archetypal influences mentioned earlier make nuclear power a particularly effective object for such projection, while anything which might jeopardize our food would undermine our very existence. It can hardly come as a surprise if the risks originating from objects which carry our projected fears in this way are widely overestimated in our society.

It is not out of place here to note that the *mass media*, emphasizing as they do everything sensational, personal misfortune, accidents and disasters occurring worldwide, together with their incessant appeal to our emotions, influence the perception of risks in general and the concentration of vague fears on certain preferential objects of projection in particular. The fact should not be overlooked that the journalists responsible for this reporting are in general just as susceptible to, and just as unaware of, influences coming from their Unconscious as is the average citizen. In addition, however, they seem to be unaware of, or in some cases are unwilling to admit, the fateful positive-feedback role that they can play among their readers on the process of risk perception as a result of their

³⁵ Marie-Louise von Franz, *The Process of Individuation*, in Carl G. Jung et al., *Man and his Symbols*, 170, 169.

subjective selection and presentation of hazards. It would constitute a big step forward if this closed feedback loop could be broken open.

Summary and Discussion

Anton Stangl has said:³⁶

Though we are today materially better off than ever before, so many of us feel a growing uneasiness at this prosperity, which we pay for by leaving our subconscious emotional needs deeply ungratified... In this way, inner discontent and a multitude of fears become our constant companions.

The psychotherapist Jung devoted his life-work to the study of these subconscious needs and was able to help countless individuals gain a more natural balance between their rational outer and their emotional inner selves. Jung has made us aware of the richness of our Unconscious, a major part of which — the collective Unconscious — is the mutual inheritance of our race from the evolution of mankind. We are far too little aware of the fact that this inheritance continues to influence us, for better or for worse, by way of our instincts and through the activity of archetypes. Archetypes are natural dispositions, but they must be awakened. They can be triggered in any particular situation and can then influence our beliefs, our decisions and our behavior in all walks of life — not least in the way we come to terms with risks.

Jung also studied the marked differences in the general character and temperament of individual persons and described the major functions which characterize them. If one individual apprehends, sees and feels more of the objective outer world than another, then again this must forcibly influence his behavior. In addition, Jung's work throws much light on the behavior of groups of like-minded individuals and on the background of societal controversies.

From a holistic viewpoint, we must face the fact that human beings are basically far more irrational than rational, and we must understand how strongly irrational forces can influence our lives. These frequently emotional influences can enrich our life immeasurably. "In Jung's view the Unconscious is the great guide, friend and adviser of the conscious."³⁷ But we must also be aware of situations in which our Unconscious can mislead us. The judgment of risks can be a case in point.

³⁶ Die vergessene Welt der Gefühle [The forgotten world of feelings], 35 (1986) (translation by author).

³⁷ Freeman, *supra* note 8, at 12.

Why is it so difficult for risk analysts and risk managers to acknowledge these irrational influences? Attempts to understand the perception and appraisal of risks in our society by the public at large have been plagued by the obvious inadequacy of all logical, i.e., rational, explanations. True, as a result of extensive work by behavioral scientists and cognitive psychologists, many judgmental biases have been uncovered, and the heuristics that seem to lie at their root have been explained or at least made plausible.³⁸ Almost universally, however, authors in the field have in their conclusions hastened to stress that such behavior is, "of course" not irrational. As a matter of fact, one gains the impression that "irrational" is some sort of an indecent word, and its use seems to be taboo.

It must be appreciated that this is very typical of our modern society, oriented as it is almost exclusively toward rationality. What is rational we consider to be good and undoubtedly right, so that anything irrational clearly seems to be not only bad, but in many cases also absurd. In its true sense, however, the word "irrational" means nothing more than "not rational," without any qualification being implied. The present derogatory interpretation is a reflection of our modern Western culture.

The crucial problem of risk perception has not been solved by the cognitive psychologists. The heuristics that they have identified can explain some deviation between perceived risk and objective risk, in whatever manner the latter may be defined. But they are certainly not anywhere nearly adequate to understand deviations of many orders of magnitude, such as they frequently occur in the judgement by the public of certain risks. Radiation, nuclear energy, gene technology and "poisons in our food" have already been referred to as examples. Here emotions come in, and there is no getting around it, emotions are irrational.

More recently it is occasionally admitted that the criteria of the lay public and its intuitive perception of risks are at least partly irrational and that they should not for this reason be considered irrelevant.³⁹ As far as the author is aware, however, nobody seems yet to have been motivated to look more closely at these irrational factors and to see whether we might not perhaps learn something thereby.

³⁸ See, e.g., *Judgement under Uncertainty: Heuristics and Biases* (Daniel Kahneman, Paul Slovic & Amos Tversky, eds. 1982).

³⁹ See, e.g., Billie Jo Hance, Caron Chess & Peter M. Sandman, *Setting a Context for Explaining Risk*, 9 *Risk Anal.* 113 (1989); Ortwin Renn, *Die Grenzen Überschreiten: Die Psychologie des Risikos*, 8 *Mensch und Umwelt* 53 (1993); and Pieter J. Stallen, *Who's Afraid of Technological Risk? An Attempt to Model Reasonable Emotions in Environmental Impact Assessment, Technology Assessment and Risk Analysis* 313 (1985).

The present article has been a short introduction to Jung's psychology of the unconscious insofar as it is applicable to our problem. This approach seems to offer deep insight into the mental functioning of us human beings and thus into our reactions in the face of risks.

The Unconscious is that part of our self which has been so regularly avoided in all attempts made until now to understand risk perception. As a matter of fact, the author feels that insight into the workings of our Unconscious proves to be the key to a deeper understanding of our frequently inconsistent response to hazards and of the conflicts that so often arise therefrom in the political management of risks.

Of course the work of Jung and his school of depth psychology has a far wider application than to the problems taken up here. In fact it is deeply relevant to almost every aspect of our lives. When Jung died in 1961, the whole field of risk perception and risk behavior was not yet recognized as the societal problem that it has since become. The author has little doubt that Jung, were he still alive, would have been fascinated by the application of his ideas in this field. As it is, deeper studies by professional Jungian psychologists in collaboration with representatives of the risk perception community would doubtless be very fruitful.

Conclusions

In the first place it must be realized and accepted that our Unconscious is a very real part of our being, without which a life of fulfillment is not possible. Opening ourselves to the great wealth slumbering in our Unconscious is the only chance we have to escape the one-sidedness of our modern rational society which has been deplored by far-seeing individuals since generations.

Moreover we must become more immediately aware of the fact that the diversity of human individuality which we experience in everyday life is chiefly the expression of fundamental differences in people's psychic make-up. Creative social contacts are only possible if we accept that our partner may experience things differently from ourselves, without him or her for this reason being a fool or an enemy.

However, we must also be on our guard. Jung was as well aware of the dangerous dual nature of the Unconscious and its contents as he was of the decisive role of our superior consciousness.⁴⁰ While our Unconscious can enrich our lives immensely in a multitude of ways, it can also lead us

⁴⁰ Cf. Aniela Jaffé, *Symbolism in the Visual Arts*, in Carl G. Jung et al., *Man and his Symbols*, 267 (translation by author).

astray. Fascinating archetypal forces can gain power over us without our realizing this, influencing us in uncontrollable ways, not always to our advantage.

Thus we must learn to recognize when our Unconscious intrudes upon our rational thought processes.⁴¹

Our reflections, if they are to be reflections at all, must be rational, that is they must be based on reason.

There is a world of difference between a conscious decision to split off and temporarily suppress a part of one's psyche, and a condition in which this happens spontaneously, without one's knowledge or consent and even against one's intention.

The former is a civilized achievement, the latter Jung termed an *archaic regression*. He meant by this a relapse into a spiritual state appropriate to an early stage of our evolution, before our consciousness developed. We human beings of today must become aware of such psychic relapses. Our consciousness must then step in and bring about the necessary corrections.

Any projection of specific contents of the Unconscious upon persons or objects in the outer world, and in particular the projection of our Shadow, are also examples of an archaic regression which we Homo sapiens must learn to overcome.

Jung's essential message is the need for an enhanced awareness, embracing an appreciation of the importance and the true role of our Unconscious, as the vital prerequisite for a genuine quality of life and for the achievement of humane relations with our fellow citizens.

His was an apparently so simple and yet so exacting call for increased individual consciousness. But he was modest and probably realistic as to how this could be achieved.⁴²

As any change must begin somewhere, it is the single individual who will experience it and carry it through. The change must indeed begin with an individual; it might be any one of us.

There is no doubt that Jung thereby confronts us with a tremendous challenge. Now, what does this enhanced awareness of the role of the Unconscious mean for the risk manager?

While accepting the fact that the subjective perception of risks will vary with the differences in character and temperament between individuals, there are cases where these differences are so extreme that rational explanations are obviously inadequate. According to Jung such extreme responses to a risk are an expression of our Unconscious of which we are

⁴¹ Jung, *supra* note 14, at 48 (translation by author) and Jung, *supra* note 9, at 25, respectively.

⁴² Jung, *supra* note 9, at 101.

in general quite unaware, and as such they are irrational in the true sense of the word. They will frequently be found to be quite inappropriate if not counterproductive in the given context.

In deference to such intuitive or emotional valuations, many safety measures have in the past been taken to reduce already minimal risks still further, while at the same time paying little attention to other situations in which, with the same or even less effort, more serious ones could be reduced far more efficiently.⁴³ It should really be an obligation for risk managers to try to keep the perception of risks broadly in line with their magnitude; otherwise all our priorities will be distorted.⁴⁴ Clearly this is not only dictated by societal fairness but, in the final analysis, it is nothing less than an ethical imperative. That such decisions confront the risk manager with a moral dilemma is a point which, it seems, has not always been clearly appreciated.⁴⁵ But the author believes that Jung has offered us the deeper understanding needed to accomplish this.

Whereas extreme positions which find individual expression can be said to originate in the personal Unconscious, Jung also recognized similar influences coming from the collective Unconscious and which he attributed to the power of archetypes. Such archetypes, being the universal possession of us all, would be expected to influence many individuals in a like manner. Even if such views, then, may be quite widely held, the risk manager must be very much on his guard. He must also recognize when vague fears or hopes may unknowingly be projected upon certain objects or activities, thus unreasonably magnifying their risks or benefits. In Jung's terms, he will in both cases be in danger of yielding to an archaic regression.

In the formation and behavior of like-minded groups, quite common in the fields of ecology and risks, Jung, while acknowledging many positive aspects, drew attention to the danger of suggestive influence on, or even manipulation of, the individual group member with the creation of a fundamentalistic and seemingly unassailable ideology. Coupled with a tendency to project one's Shadow on one's adversary, many discussions with such groups become quite sterile. Stubbornness and intolerance rule out any chance of compromise. Risk managers would do well to keep this

⁴³ See, e.g., Bernard L. Cohen, *Society's Valuation of Life Saving in Radiation Protection and Other Contexts*, 38 *Health Phys.*, 33 (1980).

⁴⁴ Herbert J. Dunster, *Regulation of Risk*, A376 *Proc. Roy. Soc'y* 199 (1981).

⁴⁵ Andrew F. Fritzsche, *The Moral Dilemma in the Social Management of Risks*, forthcoming *Risk*.

in mind when communicating with such groups. In addition, they should not forget that the mass media, with their love for the spectacular, may initiate or at least seem to confirm many extreme perceptions of risk.

Of course it is not enough for individual risk managers to take these lessons to heart. A socially acceptable management of risks is in general not the result of decisions by a few responsible individuals but is more of a socio-political process. In order that the insights gained through Jung's work really influence risk management, all persons involved in this process — and certainly the relevant opinion makers and the politicians — should also be sensitized to the relevance and importance of the depth-psychological findings discussed here as well as to the consequences that they imply.

The author sees no quick and easy way to achieve this. It is more a matter of cultural development than one of simple education, and such a process will take its time. However, as has repeatedly been implied, it is becoming more and more widely accepted that our rationalized western society is in deep need of a compensation of its one-sided materialistic world-view through a convincing cultivation of its spiritual needs if it is to surmount the problems confronting it. The problem discussed in this paper is only one of many that would profit from such a development.

In conclusion, a reader may question the validity of Jung's teachings. Like any philosophy or other construct in the realm of the intellect, Jung's psychology of the unconscious is not — and cannot be — a scientific theory susceptible to proof or falsification. Its validity stands or falls with the extent to which life situations find a plausible and coherent interpretation. An impressive confirmation of Jung's ideas is the widely acknowledged success which they have had in psychoanalysis and psychotherapy.

